

AMENDMENTS TO THE CLAIMS:

1. (Cancelled).
2. (Currently Amended) ~~The apparatus for de-interleaving the interleaved data in a coded orthogonal frequency division multiplexing receiver as claimed in claim 1,~~

An apparatus for de-interleaving interleaved data in a coded orthogonal frequency division multiplexing receiver, comprising:

a de-interleaving memory for de-interleaving said interleaved data; and

a controller for generating correct access addresses of said de-interleaving memory for the data to be de-interleaved, and controlling read and write operations to said de-interleaving memory;

wherein said controller further comprises an address generator having a plurality of base address generators and a read/write control circuitry.

3. (Original) The apparatus for de-interleaving the interleaved data in a coded orthogonal frequency division multiplexing receiver as claimed in claim 2, wherein said base address generators further include a segment base address generator, a group base address generator, a sub-group base address generator, and a cell base address generator.
4. (Currently Amended) The apparatus for de-interleaving the interleaved data in a coded orthogonal frequency division multiplexing receiver as claimed in claim 3, wherein each said base address generator of said plurality of base address generators includes a pointer that indicates the starting address of ~~[[the]]~~ a corresponding

segment, group, or sub-group, or the address of [[the]] a corresponding cell.

5. (Original) The apparatus for de-interleaving the interleaved data in a coded orthogonal frequency division multiplexing receiver as claimed in claim 2, wherein said address generator is implemented by two multiplexers, two multipliers, a divider, a quotient unit, a remainder unit, a look up table, a counter, and two adders.
6. (Currently Amended) A method for de-interleaving [[the]] interleaved data in a coded orthogonal frequency division multiplexing receiver, said de-interleaving including frequency de-interleaving, block de-interleaving and time de-interleaving, said method comprising the steps of:
 - (a) generating access addresses of a de-interleaving memory and controlling [[the]] read and write operations for said interleaved data; and
 - (b) de-interleaving said interleaved data in a manner of simultaneously performing said frequency de-interleaving, said block de-interleaving and said time de-interleaving in said de-interleaving memory.
7. (Original) The method for de-interleaving the interleaved data in a coded orthogonal frequency division multiplexing receiver as claimed in claim 6, wherein said generating access addresses in said step (a) further comprises the steps of:
 - (a1) generating a plurality of base addresses including a segment base address, a group base address, a sub-group base address and a cell address; and
 - (a2) calculating said access address according to said plurality of base addresses.
8. (Currently Amended) The method for de-interleaving the interleaved data in a coded orthogonal frequency division multiplexing receiver as claimed in claim 7, wherein

said segment base address in said step (a1) is a pointer that indicates the starting address of a segment, and a segment is defined as a required memory space ~~the required memory capacity~~ in said de-interleaving memory for de-interleaving an orthogonal frequency division multiplexing symbol.

9. (Currently Amended) The method for de-interleaving the interleaved data in a coded orthogonal frequency division multiplexing receiver as claimed in claim 7, wherein said group base address in said step (a1) is a pointer that indicates the starting address of a group in ~~[[the]]~~ a current segment, and a group is determined by ~~[[the]]~~ total delay units in a cycle to perform said time de-interleaving for said interleaved data.
10. (Original) The method for de-interleaving the interleaved data in a coded orthogonal frequency division multiplexing receiver as claimed in claim 7, wherein said sub-group base address in said step (a1) is a pointer that indicates the starting address of a sub-group, and a sub-group is defined as a row in said group.
11. (Original) The method for de-interleaving the interleaved data in a coded orthogonal frequency division multiplexing receiver as claimed in claim 7, wherein said cell address in said step (a1) is a pointer that indicates which cell in said sub-group that the interleaved data is to be written into or read from.
12. (Original) The method for de-interleaving the interleaved data in a coded orthogonal frequency division multiplexing receiver as claimed in claim 10, wherein said sub-group base address is determined by referring to a look up table that points out the offset from the starting address of said row to the starting address of said group.

13. (Currently Amended) A method for generating an access address of a de-interleaving memory used for a de-interleaving process in a coded orthogonal frequency division multiplexing receiver, comprising the steps of:
- (a) generating a segment pointer that indicates the starting address of a segment in said de-interleaving memory, wherein a segment is defined as a required memory space ~~the required memory capacity~~ for de-interleaving an orthogonal frequency division multiplexing symbol;
 - (b) dividing said segment into a plurality of groups, and generating a group pointer that indicates the starting address of a group in said segment, wherein a group is determined by ~~[[the]]~~ total delay units in a cycle to perform said time de-interleaving for said interleaved data;
 - (c) generating a sub-group pointer by referring to a look up table, wherein a sub-group is defined as a row in said group and said sub-group pointer indicates the starting address of said sub-group;
 - (d) generating a cell pointer that indicates which cell in said sub-group the interleaved data is to be written into or read from, wherein said cell pointer has an initial value and said initial value is pre-determined; and
 - (e) calculating said access address by summing up said segment pointer, said group pointer, said sub-group pointer and said cell pointer.
14. (Original) The method for generating an access address of a de-interleaving memory used for a de-interleaving process in a coded orthogonal frequency division multiplexing receiver as claimed in claim 13, wherein said look up table points out

the offset from the starting address of said row to the starting address of said group.